Deforestation, urban encroachment threaten snake species' survival

Story & photos by
Jonelle Kimbrough
Army Reserve Sustainability Programs

Actor Nicolas Cage once quipped, "Every great story seems to begin with a snake."

At Fort Buchanan, Puerto Rico, the story of wildlife conservation begins with the island's boa.

The Caribbean Islands host some of the most biologically critical and diverse snakes on Earth. The Puerto Rican boa, also known as Epicrates inornatus, is important to the environment and natural heritage of Puerto Rico. However, the U.S. Fish and Wildlife Service has listed the snake as endangered since 1970.

Fortunately for the boa, the U.S. Army Reserve "has its six." Fort Buchanan – an Army Reserve-funded installation near San Juan – is leading the charge for its protection.

The boa is crucial in its habitat, the lush forests of limestone hills called mogotes. Adult snakes prey on pests such as rats and invasive reptiles such as green iguanas. Boas are a vital component of the food chains of island birds, including the Puerto Rican lizard cuckoo and red-tailed hawk.

As necessary as it is to the island's ecological balance, the boa is vulnerable to some formidable threats.

Introduced, non-native animals such as mongooses and other snakes are competing with the boa for habitat and food. In some cases, the interlopers are turning the snakes into meals.

Deforestation, urban encroachment and pollution have damaged the boa's environment. As an island species, habitat loss is especially troubling for the snake. Quite simply, they have no other place to go.

"Its limited geographical distribution makes the Puerto Rican boa prone to local extinction by any change created by humans or natural causes," said Victor Rodriguez-Cruz, an environmental protection specialist with the Directorate of Public Works at Fort Buchanan.

Furthermore, poaching has contributed to the boa's decline. Hunters have coveted the snake for its meat and skin. As early as the 1700s, Puerto Rico exported the oil from the snake's fat as a major commodity.

The boa was hunted and killed due to the belief that snake oil provided relief for aching joints, Rodriguez-Cruz explained.

If the boa faced extinction, the biological diversity on Puerto Rico would be imperiled. Natural cycles would be disrupted and the environment would certainly suffer. Nevertheless, the people of Fort Buchanan are working to ensure a hopeful future for the snake.

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Initiated in 2013 and guided by a memorandum of understanding with the USFWS, Fort Buchanan's comprehensive, ambitious boa program includes the management of both the species and the land on which it lives. The installation's DPW and its partner agencies are capturing, measuring, tagging and performing other monitoring activities that help wildlife biologists determine boa populations, activity patterns and habitat uses. They are also enhancing the boa's environment through reforestation and native plant restoration initiatives.

Innovative projects are driving boa conservation forward.

For instance, Fort Buchanan is investigating the use of an advanced technology called a passive integrated transponder tag to study the boa. A PIT tag for a boa is similar to a microchip for a dog. It is essentially a "barcode" for an individual animal that can provide biologists electronically transmitted information on snake growth, migration and survivorship.

Also, the Department of Defense Environmental Security Technology Certification Program recently issued a grant to the Army Corps of Engineers' Research and Development Center Laboratory to examine "soft release" for snakes that require translocation at Fort Buchanan.

According to Rodriguez-Cruz, Puerto Rican boas have very cryptic habits. People rarely see them, but they occasionally venture into urban areas. Wildlife biologists must translocate these wayward snakes. With the soft release method, biologists capture boas in urban areas and move them to designated forests. There, the boas briefly live in man-made pens prior to their full release into the wild. Soft release allows the snakes to acclimate to the forests and thus raises their probabilities for survival.

Rodriguez-Cruz said that the ESTCP project has the potential to increase the effectiveness of capture and translocation efforts and to reduce snake-human encounters. The installation could also benefit financially since the ESTCP grant would cover all expenses associated with the soft release demonstration.

Outreach and awareness are essential components of Fort Buchanan's boa conservation program, too.

"By educating the public, we are eliminating a lot of misconceptions about snakes in general and especially the boa," said Rodriguez-Cruz. The installation is identifying snake habitat with signage, encouraging its residents to report boa sightings and training contractors who work on the post on boa protection procedures – to name only a few of the efforts.

Committed to the protection of its largest indigenous snake, Fort Buchanan serves as an example of conservation to the Caribbean as well as to the entire Army Reserve and active Army, both of which play a critical role in the stewardship of our military's lands and the world's precious natural resources.

"What we do inside of the installation for Puerto Rican boa conservation, if deemed efficient, can be useful to the management of the snake outside of the installation," Rodriguez-Cruz said.

The environmentally essential Puerto Rican boa has managed to survive despite the forces that jeopardize its very existence. With the Army Reserve in its corner, the snake now has the chance to thrive, and its story will be great for generations to come.

Visit https://sustainableusar.com/ for more information on Army Reserve environmental programs.

(Contributing writers include Victor Rodriguez-Cruz and Eneilis Mulero Oliveras.)

Documents solidify Reserve's environmental commitment

By Jonelle Kimbrough
Army Reserve Sustainability Programs

Maj. Gen. Peter Lennon, deputy commanding general (support), U.S. Army Reserve, has signed the Army Reserve Environmental Quality Implementation Strategy and the Army Reserve Environmental Quality Policy.

The documents solidify the Army Reserve's commitment to environmental stewardship with four strategic goals: to conserve natural and cultural resources; to ensure compliance with environmental laws and regulations; to prevent pollution of land, air and water resources; and to strengthen an integrated environmental quality program foundation.

The strategy and policy also bolster command support of sustainability objectives that will ensure continued readiness. Furthermore, they encourage Soldiers, civilians and families at all levels of the Army Reserve and its surrounding communities to foster a conservation-minded culture.

"The execution of these guiding documents will serve to strengthen the Army Reserve's ability to sustain the environmental quality of our land, air, water and natural and cultural resources, and therefore ensure the resiliency of our installations and facilities across the Army Reserve," said Paul Wirt, chief of the Army Reserve Sustainability Programs Branch, which is a part of the Army Reserve Installation Management Directorate.

All four of the Army Reserve sustainability programs – energy, water, solid waste and environmental quality – now have signed implementation strategies.

The Army Reserve relies on dependable energy, clean water, accessible land and viable air to fulfill its role as a capable and resilient defense force, as well as its role as a good neighbor.

"Sustainability enhances our readiness and resiliency for the mission and warfighters of today as well as the mission and warfighters of tomorrow," said Wirt. "Sustainability allows us to adapt to constantly evolving military objectives, maintain our relevance, allocate our resources efficiently and reduce our environmental impacts.

"Army Reserve leadership support for sustainability has been tremendous," he said. "Such support lends invaluable credibility to our programs and will further the Army Reserve's position as a pioneering leader in the Department of Defense. While there is still much to do going forward, our entire team is proud of the accomplishments we have achieved so far in establishing a solid foundation of culture change in the Army Reserve."

Visit https://sustainableusar.com/ for more information about Army Reserve Sustainability Programs.

Daniel Leavitt, herpetologist with the Arizona Game and Fish Department, attempts to capture the fringe-toed lizard.

Yuma wildlife biologists seek to conserve elusive Mojave lizard

Story & photos by Mark Schauer
Yuma Proving Ground, Arizona

As a natural laboratory, U.S. Army Yuma Proving Ground, Arizona, has a vested interest in responsible stewardship of the land.

It is the busiest of the Army's six test centers in terms of direct labor hours and boasts the longest overland artillery range in the United States, yet a relatively small portion of the proving ground's vast ranges are subject to the impact of artillery projectiles.

YPG is located in one of the nation's most extreme desert climates, but is home to a huge diversity of wildlife, including Sonoran pronghorns, desert tortoises, wild burros and bighorn sheep.

Smaller creatures like 15 different species of lizards are also in abundance here, and one in particular, the Mojave fringe-toed lizard, is of particular interest to wildlife officials.

"The Mojave fringe-toed lizard is a part of YPG's Integrated Natural Resources Management Plan," explained Daniel Steward, YPG wildlife biologist. "It's considered a species of greatest conservation need due to its special habitat requirements."

Other species of fringe-toed lizard not on YPG have faced major conservation concerns. This is in part because many other dune systems in the American West have faced threats from development, off-road vehicles and invasion by non-native plants. The few remote sand dunes at YPG, on the other hand, are far away from any populated areas and rarely traversed by people or equipment. This gives YPG an incredible opportunity for conservation.

Mojave fringe-toed lizard

"These lizards are specific to wind-blown sands," Steward said. "The challenging thing is that it is such a habitat specialist that the distribution of the lizards is naturally very, very fragmented. One remote dune system might be 30 miles away from the next."

Ranging in length from three to four inches, the fringe-toed lizard has a unique fourth toe on each foot. Their scales help provide traction on sandy ground, and a shovel-shaped snout makes them adept diggers. They primarily eat ants and other desert bugs, and wait for their prey to pass by before striking. Scales over their eyes, nostrils and ears protect them from sand, and an oscillated tan coloration heavily camouflages them against the desert floor.

"These animals are pretty limited to the dunes, and sand dunes are a very unique system for North America and deserts in general," said Daniel Leavitt, a herpetologist with the Arizona Game and Fish Department. "Some folks acknowledge that there is a great deal we don't understand about the world we live in, including what animals may have to offer. It's probably best to not allow these lizards to disappear."

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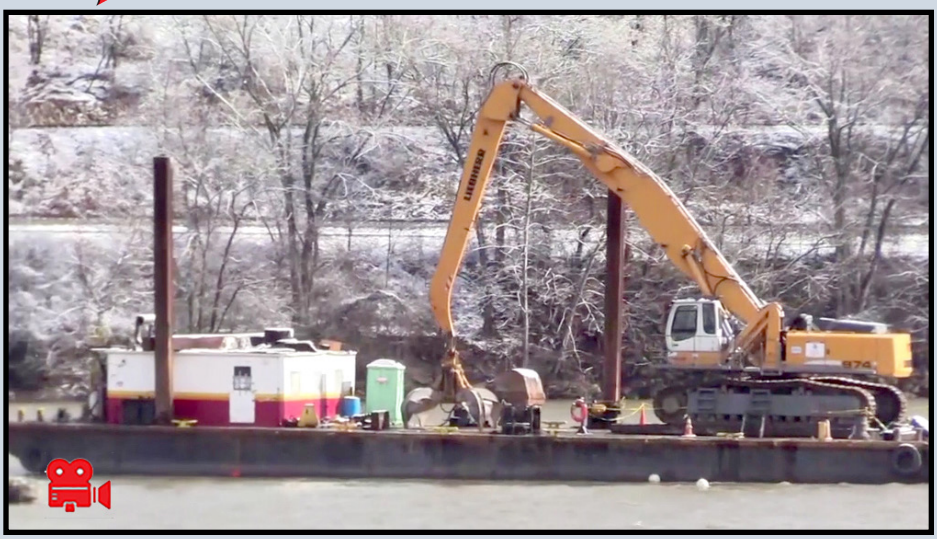
Video News Releases

Day at the lake makes for one special day

John P. Kelly, public affairs specialist with USACE, Pittsburgh District, reports on the 45th Annual Special Recreation Day held at Youghiogheny Lake, May 12.

Co-hosted by the district and the Confluence Lions Club as well as members of the local and business community, the day offered children and adults with special needs an opportunity to enjoy hay rides, boating, games and fishing.



Reclamation project revitalizes Ohio River wildlife refuge

Jeff S. Hawk, public affairs officer with USACE, Pittsburgh District, reports on the reclamation project taking place at the Ohio River National Wildlife Refuge.

Teaming up with the U.S. Fish and Wildlife Service, the district reuses clean dredged material from navigation channels to reclaim Ohio River Islands for wildlife.

(Videos by Dan Jones)

Mojave lizard continued from page 31

Steward recently hosted Leavitt for a study of the Mohave fringe-toed lizard population at YPG. The pair was particularly interested in seeing how the habitats had faired during the region's relatively rainy winter. One concern was the possible growth of an aggressive invasive weed called Sahara mustard, which crowds out native flora and sometimes grows more than a yard tall.

"We want to ensure the long-term viability of the fringe-toed lizard population," Steward said. "For example, if there are any ecological conditions that could harm that ecosystem, such as Sahara mustard and other invasive species, we may need to do weed control."

A look around the dunes, however, showed nothing but native species like desert creosote, palo verde trees and ocotillo plants in radiant orange and green bloom.

"The plant life in the dune system is rich," explained Steward. "The great thing about dunes is that every drop of rain goes into the ground. You don't think of sand holding moisture, but it really does."

The business of tracking the creatures takes patience. It was a still, calm day and the otherwise pristine sands were pocked with the unique tracks of a variety of creatures, from sidewinders to field mice. The pair circled for long minutes in the growing heat, once catching sight of a lizard fleeing into a burrow hole. Finally, the pair found one sunning in the open. Leavitt approached with a small noose attached to a long pole and lassoed the lizard.

After a brief visual inspection that showed him to be a healthy male, Leavitt released the creature onto the sand, whereupon it ran away leaving a miniature sand cloud behind. Afterward, the two inspected other sand dunes at different spots within YPG with similar results.

"It's a fascinating creature," Steward said. "Everybody's ultimate goal is to prevent the species from being placed on an endangered list, to conserve it on our own. This research gives us the information we need to be able to assess possible future impacts on this species and allows us to better support YPG's mission while ensuring conservation."